

**AUTOMATIC PAYMENT CALCULATOR UNIT FOR  
PURCHASING GOODS**

**Technology**

[1] In general, the purchaser in a large shop shows the bought articles to accounting clerk, and pays for the articles as suggested by the clerk. But this process has much to be renovated due to its inconvenience.

**Detailed Descriptions of the Invention**

**Technological Tasks.**

[2] This invention enables the purchaser to calculate the price of articles and pay for the articles himself so that the shop may be operated without the help of accounting clerk.

**Technological Solution**

[3] This invention is related to automatic payment calculation board. It is composed of

- Input device (100) which is composed of
- purchased article check part (97) where the article information is inputted by bar-code,
- Button Input Part (41) which is composed of buttons to select the payment stage,
- Weight Measurement Part (42) to check article weight,
- Cash Payment Window(57) and Credit Card Payment Window (77) to receive cash or credit card, and
- Conveyor switch (99) on the one side of calculation board (10)

Button Input Part (41) is equipped with

- Cash Payment Button (50) and Credit Card Payment Button (70), as well as
- Cash Payment Cancellation Button(51) and Credit Card Payment Cancellation Button (71)

Weight Measurement Part (42) consists of

- Weighing Machine No. 1 (20) on the left side of calculation board and Weighing Machine No. 2 (30) on the right side of calculation board

Output device (20) of Calculation Board (10) is equipped with

- Display part (43) where article information and payment stages are displayed
- Output Part (44) where the receipts are printed out
- Isolation Part (45) which controls entry gates of calculation board,
- Cash Payment Balance Window (67) to return the changes
- Signal Part (96) on one side of calculation board to give alarm, and
- Conveyor (98) in front of the calculation board

Display part (93) is composed of

- Purchased Articles Display (11) where the name, specification, numbers, unit price, and amount of purchased article as well as the weights measured by Weighing Machine No. 1 (20) and Weighing Machine No. 2 (30) are displayed,
- Cash Payment Purchased Amount Display (61) which displays the purchased amount in case of cash payment
- Cash Payment Amount Display (56), where the amount of cash put through Cash Payment Window (57)
- Cash Payment Balance Display (66) where the balance is displayed
- Credit Card Purchased Amount Display (81) for credit card payment
- Credit Card Payment Amount Display (76) where the amount of money put through Credit Card Payment Window(77) are displayed
- Credit Card Payment Balance Display (86) where the settled balance is displayed

Output Part (44) consists of

- Cash Payment Receipt Window (62) where the receipts are printed out in case of case cash payment by Cash Payment Window (57)
- Credit Card Payment Window(77) where the receipts are printed out in case of case credit card payment by Credit Card Payment Window (57), and
- Credit Card Payment Balance Window(87), where the balance amounts of credit card are printed out

Isolation Part which controls electronically gates consists of

- entry gate closing part (92) which controls entry gate
- exit gate closing part (92) which controls exit gate

The information from input device (100) is compared and verified by control device (300) in line with the functions of output device (200) elements for automatic payment calculation.

### **Expected Benefits**

[4] This invention enables the purchaser of the shop to calculate the prices and pay for the articles by himself using the automatic calculating board so that the shop may be operated without accounting clerks.

### **Brief Description of the Drawing**

[5] Drawing 1 : Perspective view, Example(1) of calculation board of this Invention

[6] Drawing 2 : Component Perspective view, Example(1) of calculation board of this Invention

[7] Drawing 3 : Component Block Diagram, Example(1) of calculation board of this Invention

[8] Drawing 4 : Control Flow Diagram, Example(1) of calculation board of this Invention

## Description of Drawing Signs

- [9]     10 : Calculation Board                      11 : Purchased Articles Display  
        20 : Weighing Machine No. 1
- [10]    30 : Weighing Machine No. 2    40 : Bar-code  
        41 : Button Input Part
- [11]    42 : Weight Measurement Part    43 : Display Part  
        44 : Output Part
- [12]    45 : Isolation Part                      50 : Cash Payment Button
- [13]    51 : Cash Payment Cancellation Button  
        56 : Cash Payment Amount Display
- [14]    57 : Cash Payment Window  
        61 : Cash Payment Purchased Amount Display
- [15]    62 : Cash Payment Receipt Window  
        66 : Cash Payment Balance Display
- [16]    67 : Cash Payment Balance Window  
        70 : Credit Card Payment Button
- [17]    71 : Credit Card Payment Cancellation Button  
        76 : Credit Card Payment Amount Display
- [18]    77 : Credit Card Payment Window  
        81 : Credit Card Purchased Amount Display
- [19]    82 : Credit Card Payment Receipt Window  
        86 : Credit Card Payment Balance Display
- [20]    87 : Credit Card Payment Balance Window  
        91 : Entry Gate                      92 : Entry Isolation Part
- [21]    93 : Exit Gate                      94 : Exit Isolation Part    96 : Signal Part
- [22]    97 : Article Information Checking Part                      98 : Conveyor
- [23]    99 : Conveyor Switch                      100 : Input Device  
        200 : Output Device
- [24]    300 : Control Device

## Industrial Utilization

[25] The following is the process of the system, when the purchaser comes into the entry gate (93) until he goes out of the calculation board through exit gate (93);

The purchase comes into the calculation board through entry gate where Entry Isolation Part(92) has been opened and then puts the S10 articles on the Weighing machine No. 1. Then the weight of the articles are transferred to control device (300), and the calculation boards becomes ready to settle the payment amount by inputting the information on the articles purchased. Then the purchaser can verify the article weight through Purchased Articles Display(11). In S11 stage "Purchased Article Information Input", the purchaser touches the bar-code (40) of the articles to Article Information Check Part (97) to input the article information to control device (300). After control device (300) received the weights from Weighing Machine No. 1, it displays them in orderly manner on one side of Purchased Articles Display(11) so that they can be verified by the purchaser. In addition the control device also displays product name, specifications, unit price, amount, total amount, etc in orderly manner on one side of Purchased Articles Display (11), after receiving such information from Purchased Article Information Check Part (97). During S12 stage verification measurement of purchased articles, the purchased articles are transported to Weighing Machine No. 2 (30). Then, control device displays the weight measured by Weighing Machine No. 2 (30) on the other side of Purchased Article Display (11), so that the purchaser could compare them. When all purchased articles are transferred to Weighing Machine No. 2 (30) from Weighing Machine No. 1 (20), after repeating S11 stage and S12 stage, control device (300) compares the purchased article weight measured by Weighing Machine No. 1 (20) with that by Weighing Machine No. 1 (20). If the weighted values are not same, control device (300) gives alarm through Signal Part (96) in S13a stage, Alarm Signal Generation. And If the values are the same, it asks the purchaser to select the payment method (by cash or credit card through Cash Payment Button (50) or Credit Card Payment (70)) in S14 stage, payment method selection. In S15 stage, Purchased Article Amount

Display, control device displays the amount on Cash Payment Purchased Amount Display (61) or Credit Card Purchased Amount Display(81), so that the purchaser can verify the amount. In S 16 stage, Payment Method Change Decision, the purchaser can change payment method. If the payment method is changed, control device rewind the process to S14 stage. But if the payment method is not changed, the purchaser is introduced to make payment through Cash Payment Window (57) and Credit Card Payment Window (77) in S17 stage. Control device displays cash payment through Cash Payment Window (56) on Cash Payment Amount Display (56) and credit card payment through Credit Card Payment Window (77) on Credit Card Payment Amount Display (76) for verification. In S18 stage, Purchased Articles Payment Decision, it compares the purchase amount and paid amount for settlement. If there is no need for settlement. If the payment cannot be made by the payment method which the purchaser selected, control device (300) will give alarm signal through Alarm Signal Creation and return to S16 stage so that the purchase can change payment method. If the payment is made by cash, and the paid amount can cover the purchased amount, the system checks whether it has sufficient change in S19a stage and, if so, control device (300) will return the change through Cash Payment Balance Window (67), and according to the payment method opted for by the purchaser, in case of no balance being remained at the stage of S19a. or the balance being cashed through S19b, or the account being supposed to be settled by the payment amount at S18, the control device (300) completes the payment and prints out the receipts through Cash Payment Receipt Window (62) in case of cash payment or receipts and card balance sheet through Credit Card Payment Receipt Window(87) and Credit Card Payment Balance Window(87). After receipts are printed out in order, control device (300) allows the purchaser to pass through exit gate by controlling Exit Isolation Part (94) in S20 stage, Exit Open. In S21 stage, the control process ends as the purchaser puts the articles from Weighing Machine No. 2(30) and pass through the exit gate (93). And then, control device (300) controls power so that the payment is additional payment cannot made. After the purchaser went out through exit gate (93) by exit Isolation Part (94), control device closes the exit gate and open the entry gate by controlling the entry Isolation Part (92) so

that another purchaser can approach calculation board (10). And all of the above process will be repeated.